REMARKS

Prior to examination on the merits, applicants respectfully request entry and consideration of the above amendments.

I. Status of the Application

Claims 48-178 are presently pending in the application. Applicants have amended claims 48, 76 and 116 to recite that the droplet is less than 5 nl. Support for the amendment appears at page 28 lines 13-14 ("dispense droplets of five nanoliters or smaller"). Applicants would like to address Cozzette *et al.* U.S. Patent No. 5,200,051 and Sanz U.S. Patent No. 3,615,240 each of which were cited in co-pending application 09/498,554 in view of the amended claims.

Cozzette et al. does not teach a dispensing droplets less than 5 nl. Furthermore, Cozzette does not suggest that it may be modified to dispense droplets less than 5 nl. Cozzette et al. states that drops between about 5 to 500 nl can be dispensed. However, Cozzette et al. dispenses volumes sufficient to cover electrodes. Cozzette et al.'s working examples indicate that at least 10 nl is used in order to effectively cover the indicator electrode of the microfabricated sensor. Cozzette et al. provide no teaching that amounts on the order of 5nl would be sufficient to achieve this application. The Examiner's attention is respectfully directed to col. 72 lines 16-19, col. 72 line 67 to col. 73 line 2 and col. 73 lines 52-55, where Cozzette et al. teaches depositing "sufficient material" (10 – 100 nl) equaling three times the diameter of the electrode. ("Sufficient material (10-100 nl) is deposited in this technique to allow for the coverage of an area about three times the diameter of the catalytic iridium electrode.") Similarly, at col. 74 lines 13-16 and 47-49, Cozzette et al. teaches that "sufficient material" (10 – 100 nl), equals two times the diameter of the electrode. ("Sufficient material (10-100nl) is deposited by this technique to

allow for the coverage of an area about twice the diameter of the catalytic iridium electrode.") Finally, in column 75, lines 37-41, Cozzette et al. teaches dispensing 10 – 100 nl to overlap an electrode on all sides by at least 30 μm. Clearly, the teachings of Cozzette are directed to completely covering the indicator electrodes present on their sensors. Cozzette et al. provides no teaching that amounts less than 10 nl would provide this important aspect of Cozzette et al.'s invention. In fact, one would not be led to use volumes less than 10 nl because to do so would risk not completely covering the electrode.

Sanz, while disclosing a micropipette capable of dispensing volumes on the order of one nl, would not lead one of skill in the art to modify Cozzette et al. to include a dispensing less than 10 nl in the practice of Cozzette et al.'s invention. Again, Cozzette et al. teaches in its working examples that amounts of 10 nl at a minimum be dispensed to completely cover the electrodes. One would not be motivated to dispense 1 nl volumes as disclosed by Sanz (i.e., 10% of the minimum working example volume employed), since to do so would likely lead to partial electrode covering which is adverse to Cozzette et al.'s invention. Cozzette et al. does not teach using minimal reagents. Cozzette et al. teaches the dispensing of volumes sufficient to completely cover the electrodes. In fact, Cozzette et al. teaches that the volume of reagent in one embodiment be such that it covers up to three times the diameter of the electrode. Cozzette et al., therefore, does not motivate one to dispense smaller and smaller volumes of fluid so as to use minimal reagents, since Cozzette et al. advises that more reagent be dispensed than can be detected by the sensor. Cozzette et al. encourages overuse of reagent dispensed at the sensors, and does not encourage minimal reagent use.

Furthermore, one of skill in the art would not look to the pipette of Sanz to modify the apparatus of Cozzette et al. Cozzette et al. teaches an automated microfabricating process which comprises a syringe which distributes liquid under the control of pulses of a pressurized gas regulated by a solenoid valve (column 58, lines 44-54, column 59, lines 18-26). In contrast, Sanz describes a manual pipette which has a tubular handle, (1), and distributes liquid by the rotational movement of a ring, (4) (column 2, lines 3-14, Figure 15). There is nothing in Sanz that would suggest the use of its pipette in an automated system. One would not have a reasonable expectation of success using the manual pipette of Sanz in the automated system of Cozzette et al.

Respectfully submitted,

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VERSION OF AMENDMENTS WITH MARKINGS TO SHOW CHANGES MADE

48. (Amended) An automated method of forming an array of polymers on a support having one or more localized areas comprising

(a) dispensing a first monomer in a droplet of less than 5 nl [or less] onto the surface of the support at the one or more localized areas wherein the one or more localized areas are smaller than 1 cm^2;

(b) allowing the first monomer to attach directly or indirectly to the surface of the support at the one or more localized areas;

(c) repeatedly dispensing an additional group of added monomers in droplets of less than 5 nl [or less] onto the surface of the support at the one or more localized areas in a manner to couple with a compound at the one or more localized areas until an array of at least 10 different polymers at different localized areas is formed.

76. (Amended) The method of claim 48 wherein the step of dispensing includes a dispenser comprising a plurality of dispensing units, wherein the plurality of dispensing units is in fluid communication with a solution comprising a monomer and wherein steps (a) and (c) comprise dispensing a droplet of less than 5 nl [or less] from one or more of the plurality of dispensing units.

116. (Amended) A method of forming an array of polymers on a support having one or more localized areas comprising

(a) locating a dispenser comprising a plurality of dispensing units a distance away from a surface of the support, wherein the plurality of dispensing units is in fluid communication with a solution comprising a monomer;

(b) dispensing at least one droplet of less than 5 nl [or less] from the dispenser, with the at least one droplet contacting the surface at a localized area smaller than 1 cm^2;

(c) allowing the monomer to attach directly or indirectly to the surface of the support at the localized area;

(d) repeating steps a through c to attach a same or different monomer at a same or different localized area until an array of at least 10 different polymers at different localized areas is formed.